

**PG&E HEARING EXHIBIT PGE-55-A**

**A.20-04-023**

**PG&E'S SECURITIZATION 2020**

The Utility Reform Network's Response to PG&E Data Request 2,  
Questions 1.a, 4, 5, 7.a, 7.b, 16, 18

**PACIFIC GAS AND ELECTRIC COMPANY**  
**Application 20-04-023**  
**(Securitization)**

**TURN Response to**  
**PG&E Data Requests**  
**Set 2**

PG&E Data Request No.:	PGE_TURN002
PG&E File Name:	Securitization2020_DR_PGE_TURN002
Date Requested:	October 20, 2020
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Q 1: With respect to the long-term return forecasts for the “twenty-five reputable investment management and consulting firms” shown in Figures 7, 8, and 9 of the Ellis Testimony:

- a. Explain how Mr. Ellis selected these twenty-five firms.

Response to Q1 – Mark Ellis

- a. Long-term capital market assumptions (CMA) reports are commonly produced and publicly distributed by major investment management firms and consultants. Mr. Ellis conducted extensive internet research to find as many as possible. He collected over thirty and reviewed them for timeliness (the firm’s latest report and released no earlier than September 2019) and completeness (sufficient data to estimate returns on the three main asset classes used in PG&E’s analysis). The twenty-five reports used in Figures 7-9 are those that met these criteria.

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Q 4: Explain the basis for adjusting the 10-year median investor forecast to reflect a longer 30-year horizon by using the ratio of Callan’s 30-year forecast to Callan’s 10-year public forecast, as described on page 15, footnote 17 of the Ellis Testimony. State whether Mr. Ellis analyzed any other firm’s 30-year and 10-year forecasts to determine a similar ratio and provide any such analysis.

Response to Q4 (Mark Ellis):

The intent of the adjustment was to account for the difference in forecast horizon between Callan’s 30 years and the 10-year investor median. Upon reviewing the investor forecasts in more detail in response to this data request, Mr. Ellis has refined his methodology to better utilize the information available in the Capital Market Assumptions (CMA) reports. Rather than adjusting a ten-year forecast by the ratio of Callan’s 30- and 10-year forecasts, Mr. Ellis believes it is more accurate to use actual 30-year forecasts where they are available. Mr. Ellis will update his direct testimony with an errata to reflect this change.

*Categorization of CMA forecasts*

As explained in TURN’s response to Question 2, 18 of the 25 CMA reports reviewed contained sufficient information to estimate 30-year return forecasts for at least one asset class. Different methodologies for estimating 30-year forecasts from these reports were used, depending on the information available.

*Estimation methodologies by category*

- “Explicit” / “Methodology”: Report language makes clear forecasts are 30 years or longer / methodology makes clear forecasts apply beyond the nominal forecast period into perpetuity (equities only).

No change; forecasts used as-is.

- “Equilibrium”: Reports provide a (second) forecast of future equilibrium returns that, in conjunction with their primary near-term return forecast, can be used to create a 30-year forecast.

A simple discounted cash flow model is used to calculate a perpetuity-equivalent return ( $p$ ) by decomposing the asset into a near-term annuity (with a return of  $n$  over the near-term time period  $t$ ) plus a future perpetuity with an equilibrium return of  $e$ . The 30-year return forecast is found by solving for  $p$ .<sup>1</sup>

Perpetuity-equivalent present value = near-term annuity + future perpetuity

$$1/p = n[1-1/(1+p)^t]/p + (e/p)/(1+p)^t$$

- “Detail”: Reports include sufficient detail about the composition of returns to estimate 30-year forecasts for some or all asset classes.

Some of the CMA reports decompose the return forecasts for each asset class into several factors: current yield or earnings, long-term growth, and valuation, plus, for

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<sup>1</sup> Mathematically, the 30-year forecast return generated by this methodology is the same as the return into perpetuity.

international equities, currency. In general, the difference between equilibrium returns and returns forecast from today is solely attributable to the valuation and currency factors. Equilibrium returns can be estimated from these forecasts simply by removing the valuation and currency components. These equilibrium returns can then be used with the reported near-term returns in the discounted cash flow model described above to estimate 30-year returns.

Table DR2-Q4-1 summarizes the key inputs and results for each methodology. Means are used to represent averages instead of the previously-used medians due to smaller sample sizes and the general absence of outliers.<sup>2</sup>

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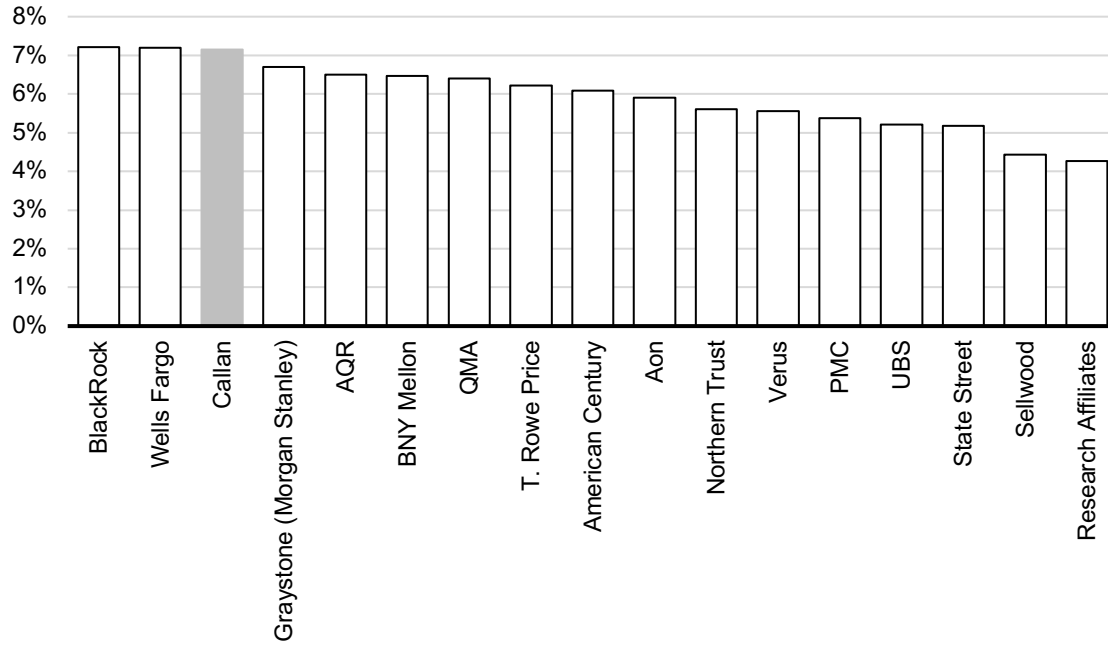
<sup>2</sup> In general, the median is used to represent the average instead of the mean in instances where outliers can materially influence the mean. The 30-year CMA data set is small, which can make the median sensitive to the inclusion or removal of a single data point. For example, the medians for broad US and non-US equity and the complete portfolios are more sensitive to the removal of one data point than the mean. For the 30-year CMA data set, the mean is therefore a better representation of the average.

**Table DR2-Q4-1: 30-year forecast returns under different estimation methodologies**

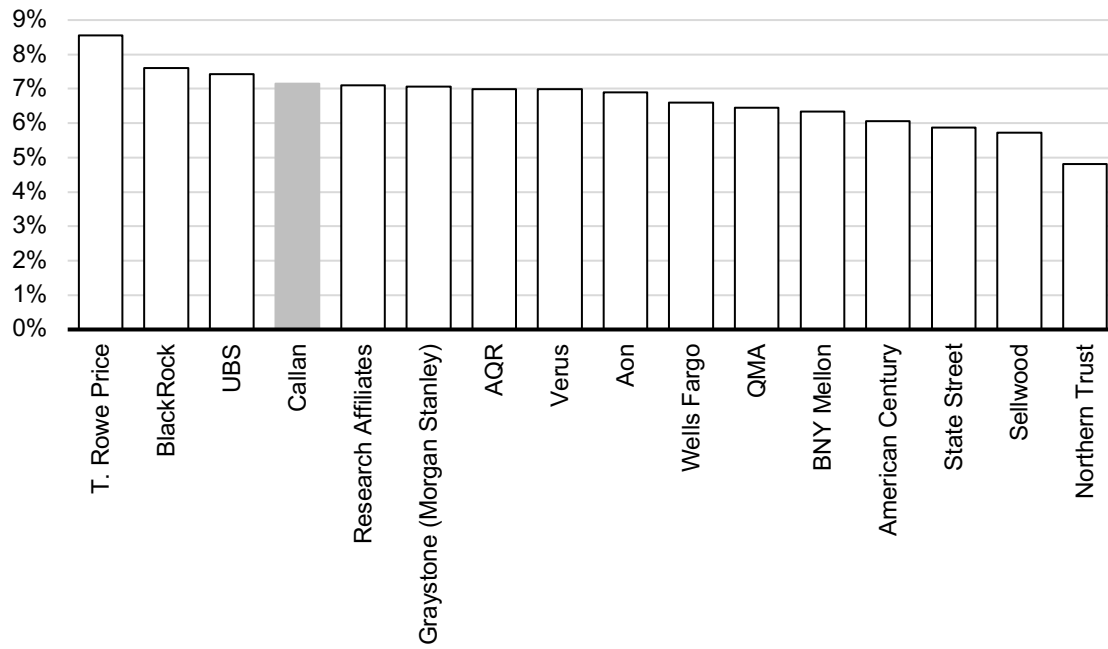
Forecaster	Nominal horizon (years)	Near-term return			Equilibrium return			30-year return		
		Broad US equity	Non-US equity	US fixed income	Broad US equity	Non-US equity	US fixed income	Broad US equity	Non-US equity	US fixed income
<i>Explicit</i>										
BlackRock	30							7.22%	7.61%	2.55%
Callan	30							7.15%	7.15%	3.60%
Sellwood	10+							4.43%	5.73%	2.10%
State Street	10+							5.17%	5.87%	0.61%
Wells Fargo	10-15							7.19%	6.60%	3.10%
Average								6.23%	6.59%	2.39%
<i>Methodology</i>										
Aon	10							5.90%	6.89%	
AQR	10							6.50%	7.00%	
Average								6.20%	6.94%	
Cum. average								6.22%	6.69%	2.39%
<i>Equilibrium</i>										
Graystone (MS)	7	4.80%	7.13%	1.50%	7.80%	7.02%	3.50%	6.70%	7.06%	3.11%
UBS	10-20	4.03%	7.15%	0.84%	6.56%	7.96%	3.84%	5.21%	7.43%	2.81%
Verus	10	5.54%	7.17%	2.20%	5.57%	6.81%	3.00%	5.56%	6.99%	2.81%
Average								5.83%	7.16%	2.91%
Cum. average								6.10%	6.83%	2.59%
<i>Detail</i>										
American Century	10	5.54%	6.18%		6.54%	5.96%		6.09%	6.06%	
BNY Mellon	10	6.20%	6.22%		6.70%	6.44%		6.47%	6.34%	
JP Morgan	10-15			2.99%			4.06%			3.67%
Northern Trust	5	4.70%	5.12%	2.30%	5.90%	4.72%		5.61%	4.81%	
PMC	10	5.35%			5.40%			5.38%		
QMA	10	5.70%	7.06%		7.00%	5.91%		6.40%	6.45%	
Research Affiliates	10	2.48%	7.44%	0.87%	5.19%	6.76%	1.99%	4.26%	7.09%	1.80%
T. Rowe Price	5	5.34%	7.90%		6.52%	8.90%		6.21%	8.56%	
Average								5.78%	6.55%	2.74%
<b>Cum. average</b>								<b>5.97%</b>	<b>6.73%</b>	<b>2.62%</b>

These refinements result in the following charts as replacements for Figures 7, 8 and 9 and Tables 1 and 2 in Mr. Ellis's original testimony. Note that Callan's returns remain in the top quartile for each asset class.

**Figure 7: Estimated 30-year geometric return – broad US equity**

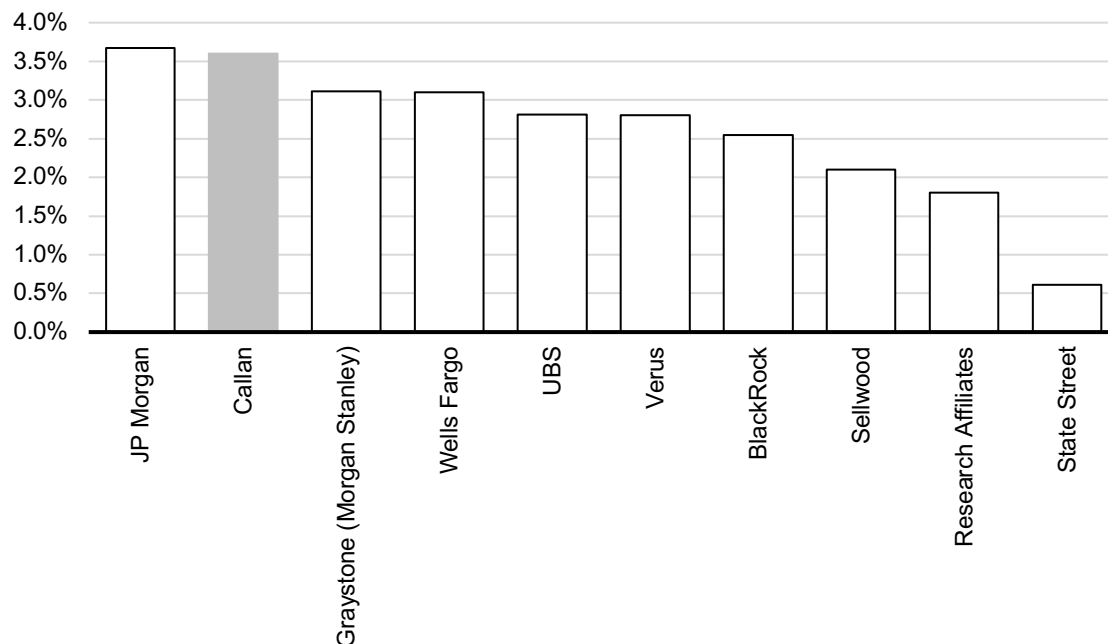


**Figure 8: Estimated 30-year geometric return – non-US equity**





**Figure 9: Estimated 30-year geometric return – US fixed income**



**Table 1: Summary of investors' 30-year return forecasts and Callan's position among them**

Line no.		Broad US equity	Non-US equity	US fixed income
1	Callan	7.15%	7.15%	3.60%
2	Number of forecasts	17	16	10
3	Average geometric return	5.97%	6.73%	2.62%
4	Callan – average	+1.18%	+0.42%	+0.98%
5	Standard deviation	0.90%	0.87%	0.92%
6	Callan rank	3 (18%)	4 (25%)	2 (20%)
7	Percentile	9%	31%	14%

**Table 2: Investor average/TURN and Callan 30-year capital market assumptions**

Line no.	Asset class	Weight	30-year geometric average return	Standard deviation	Arithmetic average return
<i>Investor average/TURN forecast</i>					
1	Broad US equity	56%	5.97%	16.23%	7.18%
2	Non-US equity	24%	6.73%	17.87%	8.17%
3	US fixed income	20%	2.62%	4.26%	2.70%
4	Portfolio total	100%	5.75%	12.85%	6.52%
<i>Callan CCT 30-year</i>					
5	Broad US equity	56%	7.15%	18.10%	8.63%
6	Non-US equity	24%	7.15%	20.50%	9.03%
7	US fixed income	20%	3.60%	3.75%	3.67%
8	Portfolio total	100%	6.79%	14.34%	7.73%

In its response to Question 3 of this data request, TURN referred to a table in Mr. Ellis's workpaper Excel file of "the median combined expected return for the same asset class portfolio mix assumed in PG&E's Chapter 6 testimony for each of the investment managers using their respective expected returns for each of the relevant asset classes" (tab F7-9 T1 AppB). Using Mr. Ellis's updated 30-year return estimation methodology, nine of the 30-year forecasts had sufficient data to estimate returns for all three asset classes (the full investment portfolio). As can be seen in Table DR2-Q4-2, the mean of these portfolio returns is very close to the return on a portfolio composed of the asset class means (+0.10%). Callan's portfolio return is the highest among the nine, consistent with its high asset class returns.

**Table DR2-Q4-2: Estimated 30-year portfolio return forecasts**

Forecaster	30-year geometric return				Portfolio	Portfolio standard deviation
	Broad US equity	Non-US equity	US fixed income			
Callan	7.15%	7.15%	3.60%	6.79%	14.34%	
BlackRock	7.22%	7.61%	2.55%	6.64%	12.72%	
Wells Fargo	7.19%	6.60%	3.10%	6.50%	12.62%	
Graystone (Morgan Stanley)	6.70%	7.06%	3.11%	6.35%	11.94%	
Verus	5.56%	6.99%	2.81%	5.64%	12.53%	
UBS	5.21%	7.43%	2.81%	5.51%	12.33%	
Research Affiliates	4.26%	7.09%	1.80%	4.69%	12.37%	
Sellwood	4.43%	5.73%	2.10%	4.69%	15.39%	
State Street	5.17%	5.87%	0.61%	4.65%	11.59%	
Average	5.97%	6.96%	2.74%	5.85%	13.03%	
Investor average	5.97%	6.73%	2.62%	5.75%	12.85%	

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Q 5: Provide a spreadsheet detailing the Additional Shareholder Contributions used in the revised TURN model (referenced on page 19, lines 16-18, of the Ellis Testimony) for each year for each of the 2,000 trials.

Response to Q5:

Please see attached Excel file "DR2-Q5 Attachment 1.xlsx", tab TURN ASC+Rtn+Tlvar+Tlshk, cells M51:AP2053.

Q 7: Provide separate estimates of the probability of a surplus for the following scenarios, using Callan's model and data except:

- a. Change only the assumed Trust returns using TURN's revised forecasts;
- b. Change only the assumed Additional Shareholder Contributions using TURN's revised model.

Response to Q7

Please see attached Excel file "DR2-Q5 Attachment 1.xlsx". The probability of a surplus for the following scenarios, using Callan's model and data except:

- a. Change only the assumed Trust returns using TURN's revised forecasts (tab TURN Rtn, cells H40:H41);

Probability of surplus: 77%  
Probability of shortfall: 24%

- b. Change only the assumed Additional Shareholder Contributions using TURN's revised model (tab TURN ASC-t, cells H40:H41).

Probability of surplus: 76%  
Probability of shortfall: 24%

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Q 16: Confirm that TURN has not prepared its own investment returns forecast.

Response to Q16 – Mark Ellis

TURN did not prepare its own investment returns forecast. TURN relied on as wide a spectrum of expert perspectives as possible. TURN adapted third-party expert forecasters' assumptions to the Customer Credit Trust's proposed investment portfolio and investment horizon.

Q 18: Was Mr. Ellis involved in preparing financial forecasts, including forecasts of taxable income, while he was employed by Sempra Energy from 2004 to 2019? Describe any such involvement.

Response to Q18 – Mark Ellis

Yes. Mr. Ellis has over two decades of experience at Sempra, McKinsey, and ExxonMobil preparing financial forecasts, including forecasts of taxable income, for a wide variety of energy-related assets and businesses. He is not at liberty to provide additional details about that work because he is under a confidentiality agreement with Sempra and other former employers and no longer has access to the relevant materials.